

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An image recognition method for recognizing an object, comprising:

capturing the object to generate a range image having three-dimensional information representing a three-dimensional shape of the object;

obtaining generating a three-dimensional deformed image by three-dimensionally deforming a captured the range image having three-dimensional information including a value of depth information of an object to be sensed; and

recognizing three-dimensional motion of an the object in the range image by comparing the obtained three-dimensionally deformed image with a newly captured range image obtained by capturing the object currently.

Claims 2 and 3 (Canceled).

Claim 4 (Withdrawn): A method according to claim 1, further comprising predicting motion of the object on the basis of a feature amount of the object extracted from the captured range image.

Claim 5 and 6 (Canceled).

Claim 7 (Withdrawn): A method according to claim 1, further comprising the step of compressing a range image captured by an image capture unit on the basis of the recognized motion of the object.

Claim 8 (Canceled).

Claim 9 (Currently Amended): An image recognition apparatus to recognize an object, comprising:

an image capture unit configured to capture the object to generate a range image having three-dimensional information ~~including a value of depth information of an object to be sensed representing the object~~;

an image deformation unit configured to three-dimensionally deform the range image ~~captured by said image capture unit~~; and

a recognition unit configured to recognize three-dimensional motion of an object by comparing a three-dimensionally deformed image obtained by said image deformation unit ~~and with~~ a new range image captured by said image capture unit.

Claims 10-15 (Canceled).

Claim 16 (Withdrawn): An apparatus according to claim 9, further comprising:

a feature amount extraction unit configured to extract a feature amount of the object from the range image captured by said image capture unit; and

a prediction unit configured to predict motion of the object on the basis of the feature amount extracted by said feature amount extraction unit.

Claims 17-22 (Canceled).

Claim 23 (Withdrawn): An apparatus according to claim 9, further comprising:

an image compression unit configured to compress the range image captured by said image capture unit on the basis of the recognized motion of the object.

Claims 24-26 (Canceled).

Claim 27 (Currently Amended): An article of manufacture comprised of a computer-usable medium having computer-readable program code means that implements computer-readable program code means for recognizing an image object, comprising:

computer-readable program code means for making a computer capture generate a range image having three-dimensional information including a value of depth information representing a three-dimensional shape of an the object to be sensed;

computer-readable program code means for making the computer three-dimensionally deform the range image captured by the image capture means to generate a deformed image; and

computer-readable program code means for making the computer recognize the presence/absence of three-dimensional motion of an the object by comparing a three-dimensionally the deformed image obtained by the image deformation means and with a new range image captured by the image capture means generated currently.

Claim 28 (Canceled).

Claim 29 (Previously Presented): An image recognition method according to claim 1, wherein the deformed image is a rotated deformed image.

Claim 30 (Previously Presented): An image recognition method according to claim 1, wherein the deformed image is moved in parallel.

Claim 31 (Previously Presented): An image recognition method according to claim 1, wherein the deformed image is contracted by rotation.

Claim 32 (Previously Presented): An image recognition apparatus according to claim 9, wherein the deformed image is a rotated deformed image.

Claim 33 (Previously Presented): An image recognition apparatus according to claim 9, wherein the deformed image is moved in parallel.

Claim 34 (Previously Presented): An image recognition apparatus according to claim 9, wherein the deformed image is contracted by rotation.

Claim 35 (Previously Presented): An article of manufacture according to claim 27, wherein the deformed image is a rotated deformed image.

Claim 36 (Previously Presented): An article of manufacture according to claim 27, wherein the deformed image is moved in parallel.

Claim 37 (Previously Presented): An article of manufacture according to claim 27, wherein the deformed image is contracted by rotation.

Claim 38 (New): An image recognition method according to claim 1, further comprising segmenting the range image of the object in units of voxels according to a distance value of the range image,

wherein the deformed image is generated by deforming the range image based on a position of the voxel.

Claim 39 (New): An image recognition method according to claim 1, wherein the capturing includes capturing the object to generate the range image based on a spatial intensity distribution of light reflected by the object.

Claim 40 (New): An image recognition apparatus according to claim 9, further comprising a segmentation unit configured to segment the range image of the object in units of voxels according to a distance value of the range image,

wherein the deformation unit is configured to three-dimensionally deform the range image based on a position of the voxel.

Claim 41 (New): An image recognition apparatus according to claim 9, wherein the image capture unit is configured to capture the object to generate the range image based on a spatial intensity distribution of light reflected by the object

Claim 42 (New): An article of manufacture according to claim 27, further includes computer-readable program code means for making the computer segment the range image of the object in units of voxels according to a distance value of the range image,

wherein the deformed image is generated by deforming the range image based on a position of the voxel.

Claim 43 (New): An article of manufacture according to claim 27, wherein the computer-readable program code means for making the computer generate the range image includes code means for making the computer generate the range image based on a spatial intensity distribution of light reflected by the object.